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EXAMINER	
MENBERU, BENIYAM	
ART UNIT	**PAPER NUMBER**
2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/922,345	ESTRADA ET AL.	
	Examiner	Art Unit	
	Beniyam Menberu	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 3 is objected to because of the following informalities:

On the second line of claim 3, "device dependent state" should be "device dependent space".

Appropriate correction is required.

Specification

2. The disclosure is objected to because of the following informalities:

On page 3, line 19, "device dependent state" should be "device dependent space".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 7, 9, 10, 12, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6345117 to Klassen.

Regarding claims 7 and 20, Klassen disclose a method and program (column 10, lines 55-61) of specifying output device independent trapping color values in a graphical processing system, comprising:

obtaining a computer readable file including color objects (column 10, lines 44-54);

identifying color boundaries between color objects, each color boundary having an edge and a first color value representing a first color in a color space, and a second color value representing a second color in the color space (column 11, lines 40-50);

identifying trap regions (column 15, lines 25-30).

Klassen disclose a method of generating trap color representing a color in the device independent color space, for each identified trap region (column 17, lines 13-20; column 14, lines 29-36; column 15, lines 35-51; Klassen uses a different color space for finding the color difference needed to generate a trap color), converting the first and second color values from the color space to a device independent color space (column 12, lines 29-31), and storing the generated trap color value in an output file (column 16, lines 40-53).

Regarding claim 9, Klassen teaches all the limitations of claim 7. Further Klassen disclose the method wherein the step of identifying trap regions includes identifying only those color boundaries whose difference between respective first

and second color values is greater than a predefined threshold value (column 13, lines 8-16).

Regarding claim 10, Klassen teaches all the limitations of claim 9. Further Klassen disclose the method wherein the difference between color values is computed by determining a rectilinear distance between the respective first and second color values (Klassen: column 7,lines 44-49).

Regarding claim 12, Klassen teaches all the limitations of claim 9. Further Klassen disclose the method where the step of generating a trap color value includes selecting the trap color value colorimetrically (column 14, lines 21-36).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 3, 5, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6345117 to Klassen in view of U.S. Patent No. 6654145 to Speck.

Regarding claims 1 and 19, Klassen discloses a method and a program (column 10, lines 57-62; column 11, lines 25-29) for specifying a device independent trap color in a color space for a color boundary (column 8, lines 51-59), comprising:

obtaining a first color value (C1), representing a first color in a color space associated with the color boundary, having a first darkness and first chromaticity (column 11, lines 30-50);

obtaining a second color value (C2), representing a second color in the color space associated with the color boundary, having a second darkness and second chromaticity (column 11, lines 30-50) ; and

generating a trap color value, representing a color in the color space, and a chromaticity that is a function of the first and second chromaticities of the first and second color values (column 14, lines 21-35). However Klassen does not teach a trap color value having substantially a same darkness as a lighter of the first and second color value.

Speck discloses a trap color value having substantially a same darkness as a lighter of the first and second color value (column 6, lines 58-65).

Klassen and Speck are combinable because they are in the similar problem area of color correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the color trapping rule taught by Speck in the method of color trapping taught by Klassen.

The motivation to combine the reference is clear because trapping can fix the problem of misregistration as taught by Speck (column 1, lines 33-40).

Regarding claim 3, Klassen in view of Speck teach all the limitations of claim 1. Further Klassen discloses the method of claim 1 wherein the first and second color values are associated with a device dependent state, the method

further comprising prior to generating a trap color value, transforming the first and the second color values from the device dependent space to a device independent space (column 12, lines 29-35).

Regarding claim 5, Klassen in view of Speck teach all the limitations of claim 3. Further Klassen discloses the method of claim 3 wherein the device independent color space is the CIELAB color space (column 12, lines 29-31).

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6345117 to Klassen in view of U.S. Patent No. 6654145 to Speck further in view of U.S. Patent Application Publication No. US 2001/0055130 A1 to Geurts et al.

Regarding claim 2, Klassen in view of Speck teach all the limitations of claim 1. However Klassen in view of Speck does not disclose the method of claim 1 wherein the first color value and the second color value have a first and second luminocity value, respectively, and wherein a luminocity value of the trap color is selected from one of the first and second luminocity values corresponding to a darker of the first and second color value.

Geurts et al disclose a trapping method wherein the first color value and the second color value have a first and second luminocity value (page 4, paragraph 64), respectively, and wherein a luminocity value of the trap color is selected from one of the first and second luminocity values corresponding to a darker of the first and second color value (page 7, paragraph 96, lines 9-15).

Klassen, Speck, and Geurts et al are combinable because they are in the similar problem area of color correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the color trapping method of Geurts et al in the combined color trapping method of Klassen in view of Speck to implement an accurate color trapping method.

The motivation to combine the reference is clear because Geurts et al disclose a method of trapping colors locally thus being able to adjust dynamically to variations in color changes across different color boundaries (page 7, paragraph 96, lines 9-15).

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6345117 to Klassen in view of U.S. Patent No. 6654145 to Speck further in view of European Patent Application No. EP0840500 A2 to Rocheleau et al.

Regarding claim 4, Klassen in view of Speck teach all the limitations of claim 3. However Klassen in view of Speck does not disclose the method of claim 3 further comprising after generating the trap color value, transforming the trap color value from a device independent space to a device dependent space associated with an output device to be used to render the color boundary.

Rocheleau et al disclose the method further comprising after generating the trap color value, transforming the trap color value from a device independent space to a device dependent space associated with an output device to be used to render the color boundary (column 7, lines 27-40).

Klassen, Speck, and Rocheleau et al are combinable because they are in the similar problem area of color correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the color conversion to device space taught by Rocheleau et al with the combined color trapping method of Klassen in view of Speck to implement a color trapping method to be applied to an output device.

The motivation to combine the reference is clear because the output device has different color space thus the conversion is necessary to implement the trapping method.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6345117 to Klassen in view of U.S. Patent No. 6654145 to Speck further in view of U.S. Patent Application Publication No.US2002/0051156 A1 to Weinholz et al.

Regarding claim 6, Klassen in view of Speck teach all the limitations of claim 1. Klassen in view of Speck disclose the method of claim 1 wherein the first color value is represented by a first luminosity (L1) and a first pair of chromaticity (A1 and B 1) color values, the second color value is represented by a second luminosity (L2) and a second pair of chromaticity (A2 and B2) color values (Klassen: column 13, lines 48-50: Klassen teaches that the input colors a and b are in LAB color space therefore there are luminosity L and associated A and B values for each input.). However Klassen in view of Speck does not disclose the trap color is represented by a third luminosity (L3) and a third pair of chromaticity (A3 and B3) color values and is generated in accordance with:

$$L3 = DARK (LI, L2),$$

$$A3 = (A2+A1)/2, \text{ and } B3 = (B2+B1)/2,$$

Regarding the luminosity L3 which is darker of L1 and L2, Weinholz et al disclose a trapping method wherein the trap color corresponds to a darker of the first and second color value (page 2, paragraph 16-20).

Regarding the A3 and B3 components which are average of respective A and B components, Weinholz et al disclose the method of averaging colors to determine trap colors (page 4, paragraph 53, lines 18-21).

Klassen, Speck, and Weinholz et al are combinable because they are in the similar problem area of color correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the trapping method taught by Weinholz et al with the combined system of Klassen in view of Speck to implement an accurate color trapping method.

The motivation to combine the reference is clear because Weinholz et al teaches that the trapping method corrects for misregistration at color contours (page 2, paragraph 13, lines 7-11; paragraph 14).

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6345117 to Klassen in view of European Patent Application No. EP 0840500 A2 to Rocheleau et al.

Regarding claim 8, Klassen teaches all the limitations of claim 7. However Klassen does not disclose the method further comprising transforming the trap color values from the device independent space to a device dependent space associated with an output device that is to render the color boundaries.

Rocheleau et al disclose the method further comprising transforming the trap color values from the device independent space to a device dependent space associated with an output device that is to render the color boundaries (column 7, lines 27-40).

Klassen and Rocheleau et al are combinable because they are in the similar problem area of color correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the color conversion to device space as taught by Rocheleau et al in the system of Klassen to implement a complete color trapping method.

The motivation to combine the reference is clear because output device may have different color space thus the conversion is needed.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6345117 to Klassen in view of U.S. Patent No. 6813040 to Uchino et al.

Regarding claim 11, Klassen teach all the limitations of claim 9. However Klassen does not disclose the method wherein the step of generating a trap color value includes computing a mean difference between the respective first and second color values.

Uchino et al disclose the method wherein the step of generating a trap color value includes computing a mean difference between the respective first and second color values (Uchino et al disclose an image combining method

wherein color correction at a boundary is implemented using average of color difference near the boundary (column 23, lines 6-35)).

Klassen and Uchino et al are combinable because they are in the similar problem area of color correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the mean difference calculation method of Uchino et al with the color trapping method of Klassen to implement an accurate color printing method.

The motivation to combine the reference is clear because the mean difference method taught by Uchino et al can correct for discontinuity of color at color boundaries (column 23, lines 32-35).

12. Claims 13, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6345117 to Klassen in view of U.S. Patent Application Publication No. US 2001/0055130 A1 to Geurts et al.

Regarding claim 13, Klassen teaches all the limitations of claim 12. Further Klassen discloses the method of generating trap color whose chromaticity value is a function of the first and second chromaticity values (column 15, lines 19-31, lines 35-50) for each color value which has luminocity and chromaticity (column 15, lines 44-49). However Klassen does not disclose the method where the trap color luminocity value corresponds to the luminocity value associated with the darker of the first and second color values.

Geurts et al disclose a trapping method wherein the first color value and the second color value have a first and second luminocity value (page 4,

paragraph 64), respectively, and wherein a luminocity value of the trap color is selected from one of the first and second luminocity values corresponding to a darker of the first and second color value (page 7, paragraph 96, lines 9-15).

Klassen and Geurts et al are combinable because they are in the similar problem area of color correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the color selection method of Geurts et al with the color trapping method of Klassen to implement an accurate color trapping method.

The motivation to combine the reference is clear because Geurts et al disclose a method of trapping colors locally thus being able to adjust dynamically to variations in color changes across different color boundaries (page 7, paragraph 96, lines 9-15).

Regarding claim 14, Klassen teaches all the limitations of claim 12. Further Klassen in view of Geurts et al disclose the method where the trap color value is selected by mapping a lighter of the respective first and second color values to a chromaticity but at darkness of a darker of the respective first and second color values (Using the method of Klassen in view of Geurts et al the lighter color value is mapped to the darker value (Geurts et al: page 7, paragraph 96, lines 9-15) at a chromaticity value determined by Klassen (Klassen: column 15, lines 19-49)).

Regarding claim 16, Klassen in view of Geurts et al teach all the limitations of claim 14. Further Klassen disclose the method of claim 14 where

the chromaticity is a function of chromaticities associated with the first and second color values (column 15, lines 19-49).

13. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6345117 to Klassen in view of U.S. Patent Application Publication No. US 2001/0055130 A1 to Geurts et al further in view of U.S. Patent Application Publication No.US2002/0051156 A1 to Weinholz et al.

Regarding claim 15, Klassen in view of Geurts et al teach all the limitations of claim 14. However Klassen in view of Geurts et al does not disclose the method of claim 14 where the chromaticity is an average chromaticity.

Weinholz et al disclose the method of averaging colors to determine trap colors (page 4, paragraph 53, lines 18-21).

Klassen, Geurts et al, and Weinholz et al are combinable because they are in the similar problem area of color correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the color averaging method of Weinholz et al with the combined color trapping method of Klassen in view of Guerts et al.

The motivation to combine the reference is clear because Weinholz et al teaches that the trapping method corrects for misregistration at color contours (page 2, paragraph 13, lines 7-11; paragraph 14).

Regarding claim 17, Klassen in view of Geurts et al teach all the limitations of claim 14. Further Klassen in view of Geurts et al further in view of Weinholz et al disclose the method wherein the trap color value is selected by mapping a lighter of the respective first and second color values to a chromaticity at a

darkness of a darker of the respective first and second color values (Using the method of Klassen in view of Geurts et al the lighter color value is mapped to the darker value (Geurts et al: page 7, paragraph 96, lines 9-15) at a chromaticity value determined by Klassen (Klassen: column 15, lines 19-49)) and at bisection of a line between them (Using the method of averaging colors taught by Weinholz et al (page 4, paragraph 53, lines 18-21), the trap color can be situated at a bisection of the two color values).

14. Claims 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6345117 to Klassen in view of U.S. Patent No. 6813040 to Uchino et al.

Regarding claims 18 and 21, Klassen discloses a method and program (column 10, lines 57-62; column 11, lines 25-29) for specifying a device independent trap color in a color space for a color boundary (column 8, lines 51-59), comprising:

obtaining a first color value (C1), representing a first color in a color space associated with the color boundary, having a first darkness and first chromaticity (column 11, lines 30-50);

obtaining a second color value (C2), representing a second color in the color space associated with the color boundary, having a second darkness and second chromaticity (column 11, lines 30-50) ; and

generating a trap color value, representing a color in the color space (column 14, lines 21-36). However Klassen does not disclose the method of computing a mean difference between the respective first and second color values.

Uchino et al disclose the method wherein the step of generating a trap color value includes computing a mean difference between the respective first and second color values (Uchino et al disclose an image combining method wherein color correction at a boundary is implemented using average of color difference near the boundary (column 23, lines 6-35)).

Klassen and Uchino et al are combinable because they are in the similar problem area of color correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the mean difference calculation method of Uchino et al with the color trapping method of Klassen to implement an accurate color trapping method.

The motivation to combine the reference is clear because the mean difference method taught by Uchino et al can correct for discontinuity of color at color boundaries (column 23, lines 32-35).

Other Prior Art Cited

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6549303 to Trask disclose a color trapping method for color printing.

U.S. Patent No. 6509903 to Yosefi disclose a two-stage color recording method.

U.S. Patent Application Publication No. US 2002/0122044 A1 to Deering disclose a method and system for color correction.

U.S. Patent Application Publication No. US 2001/0052907 A1 to Mukai et al disclose an apparatus for merging images.

U.S. Patent No. 6781720 to Klassen discloses color trapping apparatus.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beniyam Menberu whose telephone number is (703) 306-3441. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (703) 306-5631. The group receptionist number for TC 2600 is (703) 305-4700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

Beniyam Menberu
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02/01/2005

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